Remarks

Claims 1-3 and 7 were pending prior to this Response. By the present communication, no claims have been added or canceled, and claim 1 has been amended to define Applicants' invention with greater particularity. Support for amended claim 1 may be found, among others, at page 34, line 12, and at page 34, lines 15-20 of the specification as filed. The amendments do not raise any issues of new matter and the amended claims do not present new issues requiring further consideration or search. Applicants respectfully request entry of the amendments set forth in this response under 37 C.F.R. §1.116. Accordingly, upon entry of the present amendment, claims 1-3 and 7 will be pending in this application.

Claim Objections

According to page 1 of the Office Action, claim 2 is objected to. However, Applicants respectfully submit that no explanation or reason for the objection has been offered by the Office in support of the objection. Accordingly, Applicants respectfully request withdrawal of the objection.

Rejection under 35 U.S.C. § 102

Applicants respectfully traverse the rejection of claims 1 and 3 under 35 U.S.C. §102(b) as allegedly being anticipated by Germanier, et al (hereinafter "Germanier"), as evidenced by Carson, et al (hereinafter "Carson"). Specifically, the Office Action alleges that the claimed invention is not limited to purified and attenuated toxin produced by any particular method that would render it different from the prior art. To anticipate, a single reference must inherently or expressly teach each and every element of claimed invention. *In re Spada*, 15 USPQ2d 1655 (Fed Cir. 1990); and *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). MPEP § 2131.

Without acquiescing to the reasoning offered by the Office, and in order to expedite prosecution of the instant application, Applicants have amended claim 1 to require that the

purified and attenuated toxin has been attenuated by incubation at 30° to 40°C. As previously argued, the attenuated cholera toxin (CT) of the present invention is structurally different from the formalin-treated procholeragenoid disclosed by Germanier (see the Office Action response filed December 11, 2006). Applicants respectfully submit that the structural differences between the claimed CT and Germanier's procholeragenoid are produced by heat treatment at around 60°C.

Applicants have further amended claim 1 to require that the toxin is 95% pure. Applicants respectfully submit that Germanier refers to the preparations tested as, "[o]ur semipurified cholera toxin preparations...." (Germanier, page 1696, col. 2, paragraph 2). Further, Germanier discloses in Table 1 that the ratio of toxin to protein in the fraction from which the procholeragenoid is made (S-2) is 1.02, which equates to 102 mg of toxin for every 100 mg of protein. Assuming no other impurities exist in S-2, Applicants submit that S-2 is approximately 51% pure, which further supports the statement by Germanier that the preparations are semipurified. Accordingly, since Germanier fails to disclose each and every limitation as required by the amended claims, Applicants respectfully submit that Germanier fails to anticipate the claimed invention, and request withdrawal of the rejection.

Rejection under 35 U.S.C. § 103

Applicants respectfully traverse the rejection of claim 7 under 35 U.S.C. §103(a) as allegedly unpatentable over Germanier, as applied to claim 1. The recent U.S. Supreme Court decision in the KSR International v. Teleflex Inc. (82 USPQ2d 1385), modified the standard for establishing a *prima facie* case of obviousness. Under the KSR rule, three basic criteria are considered. First, some suggestion or motivation to modify a reference or to combine the teachings of multiple references still has to be shown. Second, the combination has to suggest a reasonable expectation of success. Third, the prior art reference or combination has to teach or suggest all of the recited claim limitations. Factors such as the general state of the art and common sense may be considered when determining the feasibility of modifying and/or combining references.

The arguments provided above distinguishing Germanier from the claimed invention apply equally and are incorporated here. Specifically, Germanier fails to disclose an attenuated cholera toxin that is 95% pure. Accordingly, since Germanier fails to disclose each and every limitation as required by the amended claims, Applicants respectfully submit that a *prima facie* case of obviousness has not been established, and request withdrawal of the rejection.

Applicants respectfully traverse the rejection of claim 2 under 35 U.S.C. §103(a) as allegedly unpatentable over Germanier, as applied to claim 1, in view of Douce, et al. (hereinafter, "Douce"). The arguments provided above distinguishing Germanier from the claimed invention apply equally and are incorporated here. Specifically, Germanier fails to disclose an attenuated cholera toxin that is 95% pure. The Office Action relies upon Douce for allegedly disclosing the substitution, insertion, deletion or addition of one or more amino acid residues of a toxin to modify the adjuvanticity and immunogenicity of the toxin while retaining the existing serine, glutamic acid and lysine residues. However, Douce fails to disclose an attenuated cholera toxin that is 95% pure.

Accordingly, even if one were to combine Germanier with Douce, the resulting combination would not be *prima facie* obvious over the claimed invention since the combined references do not disclose each and every claim limitation. Accordingly, withdrawal of the rejection is respectfully requested.

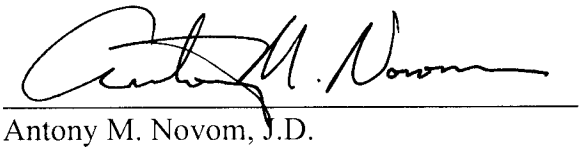
Conclusion

In summary, for the reasons set forth herein, Applicants maintain that the claims clearly and patentably define the invention and respectfully request that the Examiner withdraw all rejections and pass the application to allowance. If the Examiner would like to discuss any of the issues raised in the Office Action, the Examiner is encouraged to call the undersigned so that a prompt disposition of this application can be achieved.

The Commissioner is hereby authorized to charge $1810.00 as payment for the Petition for Three-Month Extension of Time fee ($1020.00) and Request for Continued Examination fee ($790.00) to Deposit Account No. 07-1896. Additionally, the Commissioner is hereby authorized to charge any other fees that may be due in connection with the filing of this paper, or credit any overpayment to Deposit Account No. 07-1896.

Respectfully submitted,

Date: August 31, 2007



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